



Galveston Bay Estuary Fish Consumption Advisory Frequently Asked Questions

*Prepared by the Seafood and Aquatic Life Group
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Q: What recommendation has the Texas Department of State Health Services (DSHS) made to protect human health?

A: The DSHS has prepared two advisory maps for the Galveston Bay Estuary to help people understand the advisory areas, species affected and contaminants of concern.

San Jacinto River – Houston Ship Channel: The DSHS recommends women of child bearing age and children less than 12 years of age do not eat blue crab and all species of fish from the Houston Ship Channel, the San Jacinto River below the Lake Houston Dam and all contiguous waters north of State Highway 146 Bridge. Women past childbearing age and adult men should limit consumption of blue crab and all species of fish to no more than one eight-ounce meal per month from this area.

Upper Galveston Bay: The DSHS recommends women of childbearing age and children less than 12 years of age do not eat blue crab, all species of catfish, and spotted seatrout from Upper Galveston Bay north of a line from Red Bluff Point to Five-Mile Cut Marker to Houston Point. Women past childbearing age and adult men should limit consumption of blue crab, all species of catfish, and spotted seatrout to no more than one eight-ounce meal per month.

Galveston Bay: The DSHS recommends women of child bearing age and children less than 12 years of age do not eat any species of catfish from Galveston Bay including Chocolate Bay, East Bay, Trinity Bay and West Bay and all contiguous waters. Women past childbearing age and adult men should limit consumption of any species of catfish to no more than one eight-ounce meal per month from this area. The DSHS has removed the consumption advisory for spotted seatrout from a portion of Galveston and Trinity Bays and all of East and West Bays. The area is south of a line from Red Bluff Point to Five-Mile Cut Marker to Houston Point. Laboratory testing of spotted seatrout from these areas indicated that concentrations of dioxins and PCBs have decreased to acceptable levels and no longer pose a significant health risk.

Q: Why did the DSHS reduce the size of the advisory area for spotted seatrout?

A: The size of the advisory area for spotted seatrout was reduced because DSHS risk assessors determined that there are differences in spotted seatrout PCB levels by area or section of the Galveston Bay Estuary and that dioxins levels in spotted seatrout have decreased to an acceptable level of risk in the Galveston Bay Estuary. However, the DSHS needs people to understand that the studies completed to evaluate health risks represent a “snapshot” of risk throughout the Galveston Bay Estuary on the day(s) of sampling. These studies do not account for potential dioxin and PCB level variation in seafood tissue due to environmental variables (i.e. seasonal fish movement, freshwater inflow, salinity, etc.).

Q: Is it safe to eat shrimp and other seafood from the Galveston Bay Estuary?

A: At this time, it is safe to consume shrimp and other seafood not listed in the advisories from the Galveston Bay Estuary.

Q: What species of fish and shellfish did the DSHS test from the Galveston Bay Estuary?

A: DSHS tested alligator gar, black drum, blue catfish, blue crab, flathead catfish, gafftopsail catfish, hardhead catfish, red drum, sand trout, sheepshead, southern flounder, spotted seatrout, and striped bass.

Q: What are the chemical contaminants of concern in the Galveston Bay Estuary?

A: Polychlorinated biphenyls (PCBs) and polychlorinated dibenzofurans and polychlorinated dibenzo-p-dioxins (PCDFs/PCDDs or “dioxins”), and organochlorine pesticides. Organochlorine pesticides only pose health risk in fish from the Houston Ship Channel, the San Jacinto River below the Lake Houston Dam and all contiguous waters north of Highway 146.

Q: What are PCBs?

A: PCBs are synthetic (man-made) mixtures of up to 209 individual chlorinated compounds (known as congeners). Many commercial PCB mixtures in the U.S. are known by the trade name Aroclor. PCBs are oily liquids or solids that are colorless to yellow. Some PCBs may also exist as a vapor in air. PCBs were once used commercially as coolants and lubricants in electrical transformers and capacitors, heavy-duty electrical equipment in power plants, industries, and large buildings across the country and other electrical equipment, carbonless copy papers, sealing and caulking compounds, paint additives, cutting oils, ballasts in fluorescent light fixtures, and hydraulic fluids. PCBs were valued for chemical stability and fire resistance.

Q: How do PCBs enter the environment?

A: In 1979, The United States Environmental Protection Agency (USEPA) banned the manufacture of PCBs in the United States. However, the USEPA did not require removal of PCB-containing materials still in service at the time of the ban. Therefore, some materials remain in use today. The major source of environmental PCBs in the United States today is from ongoing use, storage, and disposal of products in landfills or improper disposal of products that contain PCBs. PCBs also may be released from sediments disturbed by flooding, dredging, and other activities.

Q: What are dioxins?

A: Dioxins are a group of synthetic organic chemicals that contain 210 structurally related individual polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). In pure form, dioxins are crystals or colorless solids. Dioxins are primarily produced as unintentional byproducts of chlorine bleaching in pulp and paper mills, municipal solid waste and industrial waste incineration, combustion of fossil fuels and wood, waste and drinking water chlorination, and as contaminants in the manufacture of certain organic chemicals. Dioxins are

also natural products of forest fires and possibly other natural processes, but these sources are small compared to dioxins produced by human activity.

Q: How do dioxins enter the environment?

A: Currently, the major environmental source of dioxins is incineration. Dioxins are highly persistent in the environment due to their very low water solubility and low volatility. Most are contained in soil and sediments that serve as environmental reservoirs from which dioxins may be released over a long period of time. Particle resuspension from environmental reservoirs is an important contributor to dioxin distribution.

Q: How do dioxins and PCBs accumulate in fish?

A: Dioxins and PCBs have been found in soil, ground and surface water, air, sediment, plants, and animals in all regions of the world. Dioxins and PCBs break down very slowly in the environment and accumulate in fatty tissue, skin, and internal organs of fish and other animals. Levels of dioxins and PCBs in fish may be hundreds to a million times higher than the concentrations found in water or sediments. The amount of dioxins and PCBs found in fish varies with species, age, size, fat content, diet, and surface water and sediment concentrations. Generally, larger, older fish will contain higher levels of dioxins and PCBs than smaller, younger fish; fatty fish such as spotted seatrout and catfish species may contain higher levels of dioxins and PCBs than lean fish such as southern flounder, red drum, or black drum.

Q: Why do catfish and spotted seatrout accumulate higher levels of dioxins and PCBs than other Galveston Bay Estuary game fish?

A: Generally, dioxin and PCB level differences can occur between fish species because of higher lipid “fat” levels, dietary differences, and/or feeding locations in the Galveston Bay Estuary.

Q: How can dioxins and PCBs affect my health?

A: Eating fish that contain dioxins and PCBs may cause skin conditions such as acne and rashes. Dioxins and PCBs may also affect the immune system, reproductive system, liver, delay physical and neurological development, and may increase the risk of cancer. Additional information about the health effects of dioxins and PCBs may be obtained from the Agency for Toxic Substances and Disease Registry. See <http://www.atsdr.cdc.gov/phs/phs.asp?id=361&tid=63> and <http://www.atsdr.cdc.gov/phs/phs.asp?id=139&tid=26>.

Q: What is the source of dioxins and PCBs in the Galveston Bay Estuary?

A: DSHS does not attempt to determine contaminant sources in its risk assessments nor do these assessments produce the types of data or information to make these determinations. The Texas Commission on Environmental Quality (TCEQ) is the state agency responsible for identifying contaminant sources. The TCEQ Total Maximum Daily Load program is looking for sources of dioxins and PCBs in the Galveston Bay Estuary. See <http://www.tceq.texas.gov/waterquality/tmdl/26-hscdioxin.html> and

<http://www.tceq.texas.gov/waterquality/tmdl/78-hsc-pcbs.html>. The Texas Parks and Wildlife Department (TPWD), TCEQ and USEPA found a significant legacy dioxin source in the San Jacinto River, which has become a Superfund site. See <http://epa.gov/superfund/sites/npl/nar1773.htm>.

Q: I have been eating these fish all my life. Will I have adverse health effects?

A: The consumption limits recommended by the DSHS have allowed a margin of safety below those levels that could result in adverse health effects. Eating more than the recommended amount of blue crab or fish from Galveston Bay Estuary does not necessarily mean that a person will have adverse health effects.

Q: Should I stop eating fish?

A: No. Fish are an important source of protein in the diet. The DSHS recommends that you follow general consumption guidelines and/or fish consumption advisories or bans issued by the department for Texas waters. Specific advisory information may be obtained by contacting the DSHS Seafood and Aquatic Life Group (512)-834-6757 or by accessing the DSHS Seafood and Aquatic Life Group Web site at <http://www.dshs.state.tx.us/seafood>. Fish consumption advisory information is also published in the *Texas Parks and Wildlife Outdoor Annual Hunting and Fishing Regulations* booklet. This booklet is provided to all licensed anglers in Texas.

Q: Will cooking or cleaning fish a certain way reduce the dioxin and PCB level?

A: Yes. These chemical contaminants readily accumulate in the fatty tissues of fish. To reduce exposure to these chemicals, the skin, dark (reddish-color) muscle tissue, and fatty portions (i.e. belly fat, side fat, and fat along the top of the back) of the fish should be removed before cooking. The DSHS recommends baking or broiling skinned, trimmed fish on a rack or grill to allow fat to drip away from the fillet. If fish are fried, the frying oil should not be reused. These cooking methods will reduce exposure to many of the most common organic chemical contaminants in fish.

Q: Should I stop fishing?

A: No. Recreational fishing does not need to stop. Consuming fish in amounts recommended by the DSHS poses no significant health risk and catch-and-release fishing eliminates potential health risks.

Q: Should I be concerned about dioxins and PCBs while participating in contact recreation activities like boating or swimming?

A: There is not a concern for dioxins and PCBs while swimming or other contact recreational activities. Levels in the water are low. The concern is for consumption of seafood that concentrates the dioxins and PCBs in their tissue.

Q: Will the Galveston Bay Estuary fish consumption advisory be long term?

A: Dioxins and PCBs are contaminants that persist in the environment for years. Due to the long-lived nature of these contaminants there is a strong likelihood that the Galveston Bay Estuary consumption advisories could be long term.

Q: Will the Texas Department of State Health Services (DSHS) conduct additional monitoring?

A: The DSHS will continue to monitor seafood from the Galveston Bay Estuary if funding becomes available.

Sources of Information

United States Environmental Protection Agency (EPA) Chemical-specific Fact Sheets
<http://water.epa.gov/scitech/swguidance/fishshellfish/techguidance/chemfacts.cfm>

Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs
<http://www.atsdr.cdc.gov/toxfags/index.asp>

Agency for Toxic Substances and Disease Registry (ATSDR) Public Health Statements
<http://www.atsdr.cdc.gov/PHS/Index.asp>